

## **REMARKS/ARGUMENTS**

Applicant thanks Examiner for the detailed Office Action dated November 7, 2007. In response to the issues raised, the Applicant offers the following submissions and amendments.

### **Amendments**

Claim 1 has been amended to clarify that each module can have two or more controllers for processing the print data for the plurality of printhead ICs. The controllers are micro-processors that process the data signals into print data and send fire signals to at least one of the at least two printhead integrated circuits respectively via the electrical connector using a device addressing protocol. The amendments also explicitly define the controller and the printhead IC's to be two separate devices. These features are described in detail at page 15, line 25 to page 16, line 9, and page 19, lines 10 to 15.

Accordingly, the amendments do not add any new matter.

### **35 U.S.C. §103 - Claims 1 to 5**

Claims 1 to 5 stand rejected as obvious in light of US 6,439,908 to Silverbrook et al in view of US 6,443,555 to Silverbrook.

Amended claim 1 distinguishes these disclosures by highlighting that the printhead assembly of the present invention has printhead modules that each have more than one of their own print engine controllers (PECs). The skilled addressee, reading the claims in light of the specification as a whole, would understand that the controllers are micro-processors that send the fire signals to the nozzles on the printhead IC(s) which it controls. Amended claim 1 specifies that the controllers and their relevant printhead IC(s) are separate devices by defining that the print data is transmitted using a device addressing protocol.

As described at page 15, lines 25 to 37, the drive electronics can support multiple controllers, and this has a direct bearing on the operating speed of the printhead IC's. The print speed of the printhead assembly is easily configured to suit a specific printing application by adjusting the Print Engine Controller (PEC) to printhead IC ratio. In stead of a single PEC driving all the printhead IC's in the module, the drive electronics are configurable to support two or more PECs depending on the desired print speed – the highest ratio being 1:1 where each printhead IC had its own PEC for maximum print speeds. However, this ratio can be altered with fewer PECs per module, each PEC controlling two or more of the printhead ICs via the device addressing protocol. Furthermore, this modular approach to the control circuitry makes it easy to identify and replace defective electronics.

In the '908 patent, each module 12 has a single printhead chip 18. The modules can be individually removed and replaced so that the entire pagewidth printhead is not scrapped because of nozzle failure in one chip. Furthermore, '908 does not describe the print engine controller that drives the printhead IC's. Only the data connector 66 is discussed. The PEC is not part of the printhead assembly 10 taught by '908.

The '555 patent is directed to a wide format printer. It also uses printhead modules 1 that have a single printhead IC 2 each. Ten modules 2 are mounted to a printhead unit 3. Each unit 3 has only one PEC 18. It does not contemplate an arrangement that allows the ratio of PEC to printhead ICs to be varied.

Accordingly, '908 and '555 do not teach fundamental elements of amended claim 1. In light of this, the cited references fail to anticipate the invention defined by any of claims 1 to 5.

### **Conclusion**

It is respectfully submitted that the Examiner's rejection has been successfully traversed and the application is now in condition for allowance. Accordingly, favorable reconsideration is courteously solicited.

Very respectfully,

Applicant/s:



---

Kia Silverbrook



---

Norman Micheal Berry



---

Garry Raymond Jackson



---

Akira Nakazawa

C/o: Silverbrook Research Pty Ltd  
393 Darling Street  
Balmain NSW 2041, Australia

Email: [kia.silverbrook@silverbrookresearch.com](mailto:kia.silverbrook@silverbrookresearch.com)

Telephone: +612 9818 6633

Facsimile: +61 2 9555 7762